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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/049,865 | 06/06/2002 | Thomas Franz | 449122021000 | 2451 |
| 25227 | 7590 | 12/23/2004 | | EXAMINER |
| MORRISON & FOERSTER LLP 1650 TYSONS BOULEVARD SUITE 300 MCLEAN, VA 22102 | | | DOLE, TIMOTHY J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2858 | |

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/049,865 | FRANZ ET AL. |
| | Examiner | Art Unit |
| | Timothy J. Dole | 2858 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 November 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2 and 4-9 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,2 and 4-9 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 23 November 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892) ✓
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.

- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 4 is objected to because of the following informalities: claim 4 depends on canceled claim 3. For the purposes of examination, it is assumed that claim 4 depends on claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Yanai et al.

Referring to claim 1, Yanai et al. discloses a method for determining the offset error of a measurement, where the measurement is subject to such an offset error of a coil current of an electromagnetic actuator, comprising: measuring the coil current through a corresponding coil when the actuator is in a final position in which the coil is not supplied with current during the operation of the actuator (fig. 4 and column 9, lines 44-48); and providing the value obtained as the offset error (column 9, lines 46-48), wherein the actuator has two coils (fig. 2 (24) and (26)) respectively assigned to the final position (fig. 4a), and the coil current through the coil not assigned to the present final position is measured to determine the offset error (fig. 4 and column 9, lines 44-48).

Referring to claim 4, Yanai et al. discloses the method as claimed, further comprising: supplying the coil assigned to the final position with a capture current and a holding current such that the actuator is transferred into the final position (fig. 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai et al. in view of Bosley et al.

Referring to claim 2, Yanai et al. discloses the method as claimed except wherein the coil current is measured by potential tapping before and after a resistor connected in series with the coil, wherein the potential taps are being fed to a differential amplifier, and a constant value is added to a value output by the differential amplifier.

Bosley et al. discloses an electromagnetic actuator wherein the coil current is measured by potential tapping before and after a resistor connected in series with the coil (fig. 4), wherein the potential taps are being fed to a differential amplifier (fig. 4 (51')), and a constant value is added to a value output by the differential amplifier (column 6, lines 29-40).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the coil current measurement electronics of Bosley et al. into the

method of Yanai et al. for the purpose of providing specific measurement signals whereby making it possible to provide more control and better analysis of the system.

Referring to claim 5, Yanai et al. discloses a circuit for determining the offset error of a measurement (fig. 5), the measurement subject to an offset error of a coil current I of an electromagnetic actuator, the circuit comprising: at least one coil (fig. 5 (24)) and a control circuit (fig. 5 (56)) which evaluates the output of the current measurement circuit when the coil is not carrying any current during the operation of the actuator, and the value obtained is output as the offset error I_0 .

Yanai et al. does not disclose the coil current measurement circuit comprises a resistor connected in series into a supply line of the coil wherein at least one coil is a component of the actuator or a differential amplifier to which the potential on both sides of the resistor is fed.

Bosley et al. discloses a coil current measurement circuit that comprises a resistor (fig. 4) connected in series into a supply line of the coil (fig. 4) wherein at least one coil is a component of the actuator and a differential amplifier (fig. 4 (51')) to which the potential on both sides of the resistor is fed (fig. 4).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the coil current measurement electronics of Bosley et al. into the method of Yanai et al. for the same purpose as given in claim 2, above.

Referring to claim 6, Yanai et al. discloses the circuit as claimed wherein the output of the differential amplifier is fed together with the output of a constant-voltage

source (fig. 5 (voltage from 50)) to an adding element (fig. 5 (56)) such that an offset error of a specific polarity is obtained.

Referring to claim 7, Yanai et al. discloses the circuit as claimed wherein the actuator has first and second coils (fig. 2 (24) and (26)) assigned to a final position (fig. 4).

Yanai et al. does not disclose a resistor is connected in the supply line to each coil, the differential amplifier taps the voltage dropping across the resistor, and the control circuit evaluates outputs of the differential amplifiers.

Bosley et al. discloses a resistor (fig. 4) is connected in the supply line to each coil (fig. 4); the differential amplifier (fig. 4 (51')) taps the voltage dropping across the resistor (fig. 4) and the control circuit evaluates to outputs of the differential amplifiers (fig. 4).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the coil current measurement electronics of Bosley et al. into the method of Yanai et al. for the same purpose as given in claim 2, above.

Referring to claim 8, Yanai et al. discloses the circuit as claimed wherein the control circuit for supplying current to the first and second coils transfers the actuator into a final position (fig. 4), and the first coil assigned to the final position carries a capture current and a holding current, and the control circuit evaluates the output of the differential amplifier of the second coil (fig. 4).

6. Claim 9 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yanai et al.

Yanai et al. discloses the method as claimed, but does not specifically claim low pass filtering the signal multiple times.

It would have been obvious to one skilled in the art at the time of the invention to incorporate low pass filtering into the method of Yanai et al. for the purpose reducing noise and other erroneous signals that have inadvertently been added to the desired signal.

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Dole whose telephone number is (571) 272-2229. The examiner can normally be reached on Mon. thru Fri. from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (571) 272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2858

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJD

TJA T. D.

Anjan Deb
ANJAN DEB
PRIMARY EXAMINER